WAC 296-104-405 Existing installation -- How can the maximum allowable working pressure be established for nonstandard boilers or unfired pressure vessels? The maximum allowable working pressure MAWP of cylindrical components under internal pressure shall be established as follows:

(1) For nonstandard steel low pressure steam heating boilers the MAWP shall be computed from the formula in subsection (5) of this section not exceeding 15 psi steam.

(2) For nonstandard steel low pressure water heating boilers the MAWP shall be computed from the formula in subsection (5) of this section not exceeding 30 psi.

(3) For nonstandard cast iron low pressure steam heating boilers the MAWP shall not exceed 15 psi steam.

(4) For nonstandard cast iron low pressure water heating boilers the MAWP shall not exceed 30 psi.

(5) For boilers and unfired pressure vessels not listed above, where the original code of construction is unknown, the following formula will be used.

$$\frac{TS \times t \times E}{R \times FS} = MAWP$$

TS	=	Tensile Strength in psi as given in ASME Code, when material cannot be identified use 55,000 for steel and 45,000 for wrought iron.
t	=	thickness in inches of the thinnest part determined by actual measurement.
E	=	efficiency of longitudinal joint or ligament, whichever is the least, determined by the rules and formula in the ASME Code. When construction methods are not known welded joint efficiency will be 70%.
R	=	radius of largest course in inches.
FS	=	Factor of Safety, for boilers shall be a minimum of 5. For boilers with a longitudinal lap seam it shall be a minimum 8. Boilers with a longitudinal lap seam, unless granted a special permit, may only be used at a maximum of 15 psi provided they have passed inspection. The minimum for unfired pressure vessels shall be 4 when less than 20 years old, 4 1/2 when over 20 years old.

~~(6) For miniature hobby boilers the MAWP shall be computed using the formulas referenced in the ASME Code Section I, but the MAWP may not exceed 150 psi. For these formulas the maximum allowable stress (MAS) value shall be 0.75 times the maximum stress at 400 degrees F. in ASME Code Section II Part D, for listed materials or as set by the department for nonlisted materials.~~

[Statutory Authority: RCW 70.79.030, 70.79.040, 70.79.150, 70.79.290, 70.79.330, 70.79.350, and chapter 70.79 RCW. 04-01-194, § 296-104-405, filed 12/24/03, effective 1/24/04. Statutory Authority: RCW

70.79.030 and 70.79.040. 98-22-024, § 296-104-405, filed 10/28/98, effective 11/28/98; 97-20-109, § 296-104-405, filed 9/30/97, effective 10/31/97; Part VI, § 2, filed 3/23/60.]

Faye Dietz, May 17 , 2004